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ADOPTION OF THE REPORT OF THE COMMISSION ON ITS FIRST SESSION

Draft report

Addendum

Rapporteur: Mr. Asrat BULBULA (Ethiopia)

Chapter ___ SUBSTANTIVE THEME: THE CONTRIBUTION OF TECHNOLOGIES, INCLUDING NEW AND EMERGING ONES, FOR THE INDUSTRIALIZATION OF DEVELOPING COUNTRIES AND FOR THE STRENGTHENING OF REGIONAL AND GLOBAL INTEGRATION PROCESSES, INCLUDING PROPOSALS ON WAYS AND MEANS OF TRANSFERRING SUCH TECHNOLOGIES AND FOR THEIR INCORPORATION IN THE PRODUCTIVE SECTOR OF THOSE COUNTRIES

1. The Commission considered item 3 of its agenda at its 1st to 5th meetings from 12 to 14 April 1993. It had before it the report of the Secretary-General on the contribution of technology to industrialization and regional and global integration (E/CN.16/1993/2). A background paper, consisting of several studies and providing an overview of the relationship between globalization and the development process, regional case-studies of scientific and technological cooperation and several case-studies of national technological systems, was made available to the Commission.

2. In introducing the report, the Chief of the Science and Technology Branch of the Department of Economic and Social Development of the Secretariat said that the report reviewed global technological and managerial transformations and their effects on the economies of developing countries, and examined the extent

to which regional and global economic integration could contribute to technological modernization in the developing world. It called for integrated science and technology policies in developing countries in order to ensure the upgrading of their scientific and technological base.

3. The report discussed policy options for strengthening national entrepreneurship and endogenous science and technological capability at the national, regional and subregional levels: there was wide scope for cooperation at various levels aimed at maximizing resources and promoting interfirm regional agreements for technological innovation in order to improve the overall international competitiveness of developing countries.

4. The Commission commended the report of the Secretary-General as an objective and comprehensive basis for informed debate. Globalization trends characterized new modalities of international specialization, to which developing countries and economies in transition had to respond. Increasingly, such static comparative advantage factors as natural resources and unskilled labour endowments ceased to be the most important determinants of international competitiveness. The experience of many countries that had achieved rapid and high rates of economic growth demonstrated the critical role of factors associated with technology-based competition, namely human skills and resources, technological infrastructure and social organization.

5. For that purpose, the necessity of a scientific and technological base was stressed. Countries would then be able to engage effectively in the ongoing global restructuring process. The priority required for long-term investments in education and human resources in general was emphasized, as had been noted in paragraph 82 of the Secretary-General's report.

6. A number of speakers concurred with the views contained in the report regarding the need for a consistent institutional and regulatory framework at the national level for the effective operation of innovation systems, as well as the complexity of converting research and development (R&D) activities into economic growth and socio-economic development. For that to be achieved, adequate transfer of technology formed but one of the components of successful technological upgrading. In that respect, the Commission discussed the question of the management of incremental technical change and the problems associated with the lack of that capability. A summary of the conclusions and recommendations of a symposium on management in Africa, held in the Congo from 23 to 29 March 1992, was provided.

7. The European experience with regional and bilateral programmes on science and technology - the European Research Cooperation Agency (EUREKA), for example - was mentioned as a possible source of inspiration for developing countries. Yet it was observed that developing countries were facing exceptional difficulties in reaching compatible levels of technological development, without which effective science and technology cooperation would not occur.

8. It was noted that some aspects of the globalization of markets and of the breaking down of the operations of large transnational corporations might have worrisome effects on technological capabilities of developing countries. Current changes in the strategies of transnational corporations posed new

challenges to human resource policies in developing countries. Increasingly, large transnational corporation carried out R&D in one country, design activities in another, and manufacturing production could be spread over several regions. Those exogenous changes introduced new elements to past concerns related to the adequate balance between the proportion of engineers and scientists engaged in R&D activities and the remaining human resources, which catered to routine domestic activities.

9. In addition, the Commission noted problems of the least developed countries associated with the "brain drain" to more industrialized countries. Similar but special problems were also being faced by the countries in transition to market economies. On the one hand, the countries in transition had a high level of scientific and technological development in various fields. On the other, their systems had to adjust to a new market-oriented context and to environmental concerns.

10. While the importance of technology for industrialization should not be underestimated, the role of technology in such other critical sectors as agriculture and services had also to be taken into account. United Nations agencies and subsidiary bodies should assist developing countries and economies in transition in the collection of accurate and up-to-date information in the field of science and technology: first, in order to identify the key problem areas of particular economies and secondly, to provide information on existing advanced technologies. Such a database would serve as a tool in the formulation of projects and programmes designed to overcome identified deficiencies.

11. It was stressed that the holistic nature of the current technological wave should be recognized, in particular the linkages between science, technology and sustainable development. Sustainable development depended on the efficient use of advanced technology. Scarce scientific and technological resources must be properly allocated to serve domestic needs without losing sight of the possible detrimental environmental impact of the technologies used. Therefore, the quest for ecologically sound technologies created a new burden for developing countries. Efforts of the United Nations system should aim at facilitating access of developing countries to those technologies.

12. Several members of the Commission described their national science and technology policies. Many developing countries, with the exception of the newly industrializing countries, were facing difficulties in maintaining, let alone enhancing, their levels of R&D expenditure.

13. Representatives of some industrialized countries described their bilateral higher-education assistance programmes for developing countries. Such cooperation was often decentralized and involved non-governmental organizations.

14. Regional and subregional experiences with scientific and technological cooperation arrangements were described such as the Bolivar Programme for Regional Technological Integration and Innovation and Industrial Competitiveness of Latin American and Caribbean Products and Enterprises.

15. The ongoing discussion of the reform of the Secretariat was also touched upon. The spokesman for the States Members of the United Nations that are members of the Group of 77 called for the provision of adequate resources and

clearly identifiable structures for the full implementation of the programmes defined in the medium-term plan in the field of science and technology. Special concerns were expressed for the continuation of the United Nations endogenous capability-building project in developing countries.

16. Representatives of United Nations agencies and observers for non-governmental organizations summarized some of their programmes in connection with the substantive theme. The representative of the International Labour Organisation drew the attention of the Commission to the impact on employment of global changes in the reallocation of productive activities by transnational corporations. The representative of the Latin American Economic System (SELA) recalled that SELA had been concerned with technical change and productivity in Latin America from its inception and would continue to work closely with the United Nations Secretariat, the specialized agencies and other intergovernmental entities, as well as with non-governmental organizations, in their endeavour to promote scientific and technological development in developing countries.

17. The representative of the United Nations Industrial Development Organization (UNIDO) referred to the impact of macroeconomic factors on the evolution of global economic trends. He drew the Commission's attention to the fact that science and technology had been a casualty of fiscal adjustment programmes adopted by developing countries. He suggested that the revitalization of existing R&D institutions and mechanisms take into consideration the new components of the current global economic reality. He said that a certain amount of reassessment of science and technology was required and there was no better body to do that than the Commission. Three areas required study: technology transfer and management; technology and sustainable development; and new growth areas for new technology. He reviewed the initiatives UNIDO was taking in the area of sustainable development.

18. The representative of the Economic Commission for Africa (ECA) summarized some of the difficulties faced by the region. In particular, the critical problem of the "brain drain" of scientists and skilled human resources was described and analysed. Regional centres of excellence had to be developed in order to circumvent that problem. The alternative sequencing of R&D systems in developed and developing countries to meet different social and economic realities was noted. During the past decade, multilateral and bilateral development funds had declined noticeably, while the demand for cooperation resources in Africa had increased. He also raised the need for a rethinking of the current emphasis on applied research: the traditional sequence of research, development and application should be application, research and development when it came to developing countries - the African countries in particular.

19. The observer for the Western Society of Malacologists examined the problems and possible solutions in bringing new and emerging aquaculture technologies to countries that had potential for developing their cultured pearl industry. The representative of the Société des électriciens et des életroniciens said that the need for scientific and technological data banks was critical. In that regard, he urged the Commission to examine how science and technology could contribute to the well-being of mankind in an environmentally sustainable manner. Finally, the observer for the Sunsat Energy Council described the purpose of his organization and summarized the applications of wireless power transmission, the basic technology for solar power satellites.

20. The Chief of the Science and Technology Branch replied to questions raised during the discussion with respect to the impact of current trends on R&D capabilities in developing countries; the relevance of the policy implications reviewed in the Secretary-General's report for the economies in transition; and the overall importance of policy options at the national level for the evolution of national scientific and technological capabilities in individual countries.

21. In his concluding remarks, the Acting Chairman expressed satisfaction with the high quality of the Secretary-General's report and summarized some of the conclusions regarding the key role of the Commission on Science and Technology for Development: as had been suggested by many members, the Commission should serve, inter alia, as a global framework for the assessment of scientific and technological advancement and of its impact on developing countries and economies in transition. The Commission should review and reassess the new and emerging technologies which would significantly affect the pattern of future development in those countries. The Commission should also promote and conduct workshops and seminars to disseminate knowledge and experience of the technologically developed countries. The analysis should focus on the impact of new technologies on the following areas: the international competitiveness of nations; sustainable development; and employment trends. The Commission should also encourage and stimulate regional and global integration through science and technology. Priorities should be assigned to the establishment of institutional mechanisms related to the implementation of technological cooperation projects. In that endeavour, the Commission could avail itself of the work of United Nations agencies and regional commissions, as well as of the experience of appropriate intergovernmental and non-governmental organizations.